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EXAMINER

NAHAR, QAMRUN

ART UNIT PAPER NUMBER

2191

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/919,406

Applicant(s)

STREET ET AL.

Examiner

Qamrun Nahar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 5/20/05.
2. The rejection under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention to claims 10 and 27-30 is withdrawn in view of applicant's amendment.
3. Claims 10 and 27 have been amended.
4. Claims 1-33 are pending.
5. As previously indicated in the last Office Action (Mailed on 08/13/2004, par. 2), the oath/declaration stand finally objected to.
6. As previously indicated in the last Office Action (Mailed on 08/13/2004, par. 3), claim 27 stand finally objected to because of informalities.
7. Claims 1-33 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Wilner (U.S. 5,872,909) in view of Chen (U.S. 5,806,062).

Response to Amendment

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilner (U.S. 5,872,909) in view of Chen (U.S. 5,806,062).

Per Claim 1:

Wilner teaches a method for collecting and displaying object interaction on a target comprising the steps of: logging object interaction data on a target over a monitoring period (“The present invention logs events which occur in the target software, and stores these in a buffer for periodic uploading to a host computer. Such events include context switching times of particular software tasks, and task status at such context switch times, along with events triggering such a context switch or other events.” in column 2, lines 34-39); and displaying the object interaction data as a graph (column 2, lines 39-62). Wilner does not explicitly teach that the graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes. Chen teaches that the graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes (column 12, lines 31-67).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Wilner to display a graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two node using the teaching of Chen. The modification would be obvious because one of ordinary skill in the art would be motivated to display relationships between objects (Chen, column 12, lines 4-27).

Per Claim 2:

The rejection of claim 1 is incorporated, and Wilner further teaches wherein the displaying step comprises displaying the graph on a host computing environment, and wherein the method further comprises the step of, prior to the displaying step, uploading the logged object interaction data from the target to the host computing environment (column 2, lines 39-62).

Per Claim 3:

The rejection of claim 1 is incorporated, and Wilner further teaches wherein the object interaction data is operating system object interaction data (column 2, lines 34-39).

Per Claim 4:

The rejection of claim 1 is incorporated, and Wilner further teaches wherein the step of logging object interaction data comprises recording interactions between operating system objects, the operating system objects including one or more of a semaphore, an ISR, a task and a memory call (column 20, lines 63-67 to column 21, lines 1-45).

Per Claim 5:

The rejection of claim 1 is incorporated, and Chen further teaches wherein each line is terminated with at least one arrow (column 12, lines 31-67).

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Per Claim 6:

The rejection of claim 5 is incorporated, and Chen further teaches wherein each arrow on each line is indicative of a direction of interaction between the two nodes connected by said each line (column 12, lines 31-67).

Per Claim 7:

The rejection of claim 1 is incorporated, and Chen further teaches further comprising the step of accepting, as input from a user, a query for information regarding the logged object interaction data and displaying information responsive to the query to the user (column 13, lines 43-67 to column 14, lines 1-38).

Per Claim 8:

The rejection of claim 1 is incorporated, and Wilner further teaches wherein the logging step is performed by a WindView development tool (column 4, lines 35-46).

Per Claim 9:

The rejection of claim 8 is incorporated, and Wilner further teaches wherein the WindView development tool is a WindView 2.0 development tool (column 4, lines 35-46).

Per Claim 10 (Amended):

The rejection of claim 8 is incorporated, and Wilner further teaches wherein the WindView development tool is a WindView 1.0 development tool (column 4, lines 35-46).

Per Claim 11:

The rejection of claim 1 is incorporated, and Wilner further teaches wherein the logging step is performed by a Linux Trace Toolkit development tool (column 4, lines 47-53).

Per Claims 12-13:

These are system versions of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, these claims are also obvious.

Per Claim 14:

The rejection of claim 1 is incorporated, and Chen further teaches wherein the executable graphing component and the executable logging component both execute on a common processor (column 4, lines 31-59).

Per Claims 15-17:

These are system versions of the claimed method discussed above, claim 2, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above.

Thus, accordingly, these claims are also obvious.

Per Claims 18-26:

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These are system versions of the claimed method discussed above (claims 3-11, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claim 27 (Amended):

This is a host computing environment version of the claimed method discussed above (claims 1 and 2), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claims 28-30:

These are host computing environment versions of the claimed method discussed above (claims 5-7, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claim 31:

This is a computer readable media version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 32:

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The rejection of claim 1 is incorporated, and Wilner further teaches further comprising the steps of: identifying isolated objects based upon the logged interaction data; and generating a protection domain for the isolated objects (column 21, lines 28-45).

Per Claim 33:

The rejection of claim 32 is incorporated, and Wilner further teaches wherein the protection domain is a VxWorks AE protection domain (column 15, lines 58-67 to column 16, lines 1-2; and column 21, lines 28-45).

Response to Arguments

10. Applicant's arguments filed on 12/13/04 have been fully considered but they are not persuasive.

In the remarks, the applicant argues that:

a) In support of his rejection, the Examiner alleges that Wilner et al teaches all of the limitations of claim 1, except for the claimed "the graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes." We agree.

The Examiner further asserts that Chen teaches this limitation at col. 12, lines 31-67, and that "[t]he modification would be obvious because one of ordinary skill in the art would be motivated to display relationships between objects (Chen, column 12, lines 4-27)." We respectfully disagree with both of these assertions.

Wilner et al provides ...

In contrast, Chen et al. is directed ...

Applicants respectively submit that it would not have been obvious to a person of ordinary skill at the time of the invention - and without the benefit of hindsight - to select features of Chen et al. and Wilner et al. and combine them as suggested by the Examiner to arrive at the claimed invention.

There is no suggestion to be found within the references themselves for a motivation to combine those features. As admitted, Wilner et al. does not disclose displaying object interaction data as a graph "having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes." Nor, Applicants submit, is there any suggestion within Wilner et al. for a need or desire for such a display.

On the contrary, Wilner et al. displays the *timing* of multiple event actions that are occurring simultaneously on separate lines along a common *time line* in a single display. See column 6, lines 66-column 7, line 1, and Figs. 2 and 9. Though Wilner et al. describes a significant improvement in the technology of target environment software debugging, it neither recognizes nor suggests any need to the claimed graphical representation, which is concerned not with when objects such as tasks or semaphores execute, but rather, is concerned with whether different objects interact with each other.

Nor does Chen et al. provides any motivation to combine. Chen et al. relates to a virtual database system, a subject unrelated to the topic of target environment debugging disclosed in Wilner et al. Furthermore, there is no suggestion that the graph of Chen et al, which was used to

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indicate differences between two versions of a computer program, should be applied to object interactions on a target as claimed. It is therefore respectfully submitted that the combination of Wilner et al and Chen et al cannot render obvious claim 1.

As claims 12, 27, and 31 similarly require a "graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes, " the combination of Wilner et al and Chen et al similarly fails to render obvious these claims as well.

Withdrawal of the rejections to claim 1, 12, 27, and 31 is therefore respectfully requested. As all of the remaining claims depend from one of these claims, withdrawal of the Examiner's rejection of claims 2-11, 13-26, 28-30, and 32-33, is also requested.

Examiner's response:

a) Examiner strongly disagrees with applicant's assertion that the combination of Wilner and Chen fails to disclose the claimed limitations recited in claims 1-33. The combination of Wilner and Chen clearly shows each and every limitation in claims 1-33.

As previously pointed out in the last Office Action (Mailed on 08/13/2004, par. 9), Chen teaches that the graph having a plurality of nodes and at least one line, each node being associated with a corresponding object, each line connecting two of the nodes and representing an interaction between the respective objects associated with the two nodes (column 12, lines 31-67). The modification would be obvious because one of ordinary skill in the art would be motivated to display relationships between objects (Chen, column 12, lines 4-27).

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In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In addition, see the rejection above in paragraph 9 for rejection to claims 1-33.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QN
July 29, 2005

A handwritten signature in black ink, appearing to read 'Antony Nguyen-Ba', written in a cursive style.

**ANTONY NGUYEN-BA
PRIMARY EXAMINER**